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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/654,568	09/03/2003	Hidefumi Yoshida	2803.68246	5834

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EXAMINER

SCHECHTER, ANDREW M

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding. *

Office Action Summary

Application No.

10/654,568

Applicant(s)

YOSHIDA ET AL.

Examiner

Andrew Schechter

Art Unit

2871



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16,17,29,31,32 and 57-66 is/are pending in the application.
- 4a) Of the above claim(s) 31,32,57 and 59-64 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 58 is/are allowed.
- 6) ☒ Claim(s) 16,17,29,65 and 66 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/454,578.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 30 September 2005 has been entered.

Response to Arguments

2. Applicant's arguments filed 30 September 2005 have been fully considered but they are not persuasive.

The amendments to the claims overcome the rejections in view of *Kubo* as discussed by the applicant [pp. 11-13]. These rejections are therefore withdrawn.

The applicant argues [p. 14] that in *Nishida* the first group of stripe electrodes [the pixel electrodes 2] are not disposed entirely within an area bordered by the scanning line 4 and the opposing electrode bus line 3. This is true, but irrelevant, since the amended limitation is that the stripe electrodes are entirely within an area bordered by the gate lines (scanning lines) and the drain lines (which in *Nishida* are the vertical signal lines 6 not the opposing electrode bus lines 3, which are in no way "drain lines"). The following rejections in view of *Nishida* are therefore appropriate.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishida et al.*, U.S. Patent No. 6,052,168 in view of *Oh et al.*, U.S. Patent No. 6,812,985.

Nishida discloses [see Figs. 4 and 5, for instance] a liquid crystal apparatus comprising a pair of substrates [10], a liquid crystal [7] between them, gate lines [4] and drain lines [6], a plurality of stripe electrodes [1, 2, and 20] disposed entirely within an area bordered by the gate and drain lines, and a vertical alignment layer [11] formed on one of said substrates, said stripe electrodes including first [2] and second [1, 20] groups of stripe electrodes parallel to each other, being supplied with first and second voltages (different) respectively, a vertical alignment layer [11] on the other substrate, and an insulating layer [13 or 14] covering at least one of the first and second groups of stripe electrodes and arranged under the alignment layer formed on the one of said substrates.

Nishida does not disclose a transparent electrode having an entirely solid surface on the other substrate. *Oh* discloses [see Fig. 6, for instance], for an analogous device, a transparent electrode [125] having an entirely solid surface on the other substrate. It would have been obvious to one of ordinary skill in the art at the time of the invention to

have such an electrode in the device of *Nishida*, motivated by *Oh*'s teaching that it shields the device from electrostatic discharge from the hand of a user [col. 4, line 62 – col. 5, line 2]. Claim 16 is therefore unpatentable.

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishida et al.*, U.S. Patent No. 6,052,168 in view of *Oh et al.*, U.S. Patent No. 6,812,985 as applied above, and further in view of *Ohe et al.*, U.S. Patent No. 5,600,464.

Nishida discloses an insulating layer [13 or 14] which is made of silicon nitride (SiN) and an alignment layer [11], but is silent on the material of the alignment layer and volume resistivities of both of these layers. *Ohe* discloses an analogous insulating layer made of SiN with a volume resistivity of $3.0 \times 10^{14} \Omega\text{cm}$ and an alignment layer made of polyamide with a volume resistivity of $1.0 \times 10^{14} \Omega\text{cm}$. It would have been obvious to one of ordinary skill in the art at the time of the invention to use such materials with the disclosed resistivities for the layers in the device of *Nishida*, motivated by *Ohe*'s example and teaching that the LCD using these materials had no residual image (produced good quality displays). Claim 17 is therefore unpatentable.

6. Claims 65 and 66 are rejected under 35 U.S.C. 103(a) as being unpatentable over either *Nishida* in view of *Oh* or *Nishida* in view of *Oh* in view of *Ohe* as applied above, and further in view of *Shin et al.*, U.S. Patent No. 6,271,903.

Nishida in view of *Oh* does not explicitly disclose that a voltage applied to the transparent electrode on the other substrate is the same as either the first or second voltage. *Shin*, for an analogous LCD, discloses that the voltage applied to the common lines and common electrodes [analogous to the second group of stripe electrodes in

Nishida, receiving the second voltage] is the same as the voltage applied to an electrode on the opposite substrate [in *Shin*'s case, a black matrix, in *Oh*'s case, a transparent electrostatic shielding electrode] and is a ground voltage [col. 7, lines 47-54]. The examiner takes official notice that it is well-known to hold the common electrodes at ground, as evidenced by the example of *Shin*, and also that it is well-known that electrodes used as electrostatic shields are typically held at the ground potential in order to perform their shielding function. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to have these electrodes in *Nishida* in view of *Oh* both be at the same (ground) voltage as is done in *Shin*, motivated by the desire to have the electrostatic shield work and take advantage of conventional (thereby being well-tested and understood, avoiding the need for experimentation and possible faults) driving voltage arrangements. Claims 65 and 66 are therefore unpatentable.

7. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Nishida* in view of *Oh* in view of *Shin* as applied above to claim 65, and further in view of *Kim*, U.S. Patent No. 6,177,970.

Nishida in view of *Oh* in view of *Shin* discloses [as discussed above] an LCD with substrates, liquid crystal, stripe electrodes and a vertical alignment layer, two groups of stripe electrodes parallel with two different voltages, a transparent electrode having an entirely solid surface and a vertical alignment layer on the other substrate, the first group of stripe electrodes receiving an image data voltage and the second group of stripe electrodes and the transparent electrode receiving a common voltage [ground],

such that alignment of the liquid crystal is changed according to an electric field between the stripe groups and between the first stripe group and the transparent electrode [it is inherent that there will be such an electric field and that it will affect the liquid crystal molecules at least slightly].

Nishida in view of *Oh* discloses an insulating layer [13] formed on the substrate under the alignment layer to cover the first and second groups of stripe electrodes, but does not disclose that the insulating layer is partially removed in the vicinity of at least one of the first and second groups of stripe electrodes.

Kim discloses [see Figs. 4-7, for instance] an analogous LCD in which an analogous insulating layer [80] is partially removed. *Kim* teaches that by removing such an insulating layer over the electrodes, the effective voltage applied to the liquid crystal molecules is higher than it would be with the insulating layer completely in place, and an after-image effect is reduced [col. 5, lines 20-25]. It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to partially remove the insulating layer [13] in *Nishida*, motivated by *Kim*'s teaching that this increases the effective voltage applied to the liquid crystal molecules and has a beneficial effect on the display. Claim 29 is therefore unpatentable.

Allowable Subject Matter

8. Claim 58 is allowed.
9. The following is a statement of reasons for the indication of allowable subject matter:


The prior art does not disclose the liquid crystal display apparatus of claim 58, in particular the limitations that there are a plurality of stripe electrodes per pixel on one substrate, a transparent electrode covering substantially the whole surface of the other substrate, and an insulating layer covering the stripe electrodes, having openings above the stripe electrodes with tapered side walls. Claim 58 is therefore allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Andrew Schechter
Primary Examiner
Technology Center 2800
23 December 2005